

CLAIMS

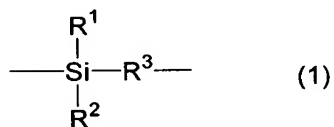
1. A stopper for chemical mechanical planarization comprising an organosilicon polymer.

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2. The stopper for chemical mechanical planarization according to claim 1, wherein the organosilicon polymer is a polycarbosilane.

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3. The stopper for chemical mechanical planarization according to claim 1, wherein the organosilicon polymer is at least one polymer selected from the group consisting of polymers having the structural unit of the following formula (1),



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wherein R^1 and R^2 independently represent a hydrogen atom, an alkyl group having 1-30 carbon atoms that may have a substituent, an alkenyl group having 1-30 carbon atoms that may have a substituent, an alkynyl group having 1-30 carbon atoms that may have a substituent, or an aromatic group that may have a substituent and R^3 represents $-\text{C}\equiv\text{C}-$, $-\text{CH}_2-$ that may have a substituent linked with at least one $-\text{C}\equiv\text{C}-$ group, an alkylene group having 2-30 carbon atoms that may have a substituent linked with at least one $-\text{C}\equiv\text{C}-$ group, an alkenylene group having 2-30 carbon atoms that may have a substituent linked with at

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least one $\text{-C}\equiv\text{C-}$ group, an alkynylene group having 2-30 carbon atoms that may have a substituent linked with at least one $\text{-C}\equiv\text{C-}$ group, or a divalent aromatic group having 2-30 carbon atoms that may have a substituent linked with at least one $\text{-C}\equiv\text{C-}$ group.

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4. A coating solution for forming a stopper for chemical mechanical planarization comprising a polycarbosilane and an organic solvent.

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5. A method for producing a stopper for chemical mechanical planarization comprising applying a coating solution comprising (A) a polycarbosilane and (B) an organic solvent to a substrate and heating the coating.

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6. A chemical mechanical planarization method for removing a metallic film formed on an insulating film using a polishing solution characterized by providing a stopper for chemical mechanical planarization comprising polycarbosilane between the insulating film and metal film.

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7. The chemical mechanical planarization method according to claim 6, wherein the metallic film comprises a first metal film of a barrier metal and a second metal film of copper, an alloy containing copper as a main component, or a
25 copper compound.

8. A chemical mechanical planarization method comprising

forming a layer having an opening on a semiconductor region,
the layer comprising an insulating film formed on the
semiconductor region and a stopper for chemical mechanical
planarization formed on insulating film, depositing a first
5 metallic film of a barrier metal and a second metallic film of
copper, an alloy containing copper as a main component, or a
copper compound in the stopper for chemical mechanical
planarization and the opening to fill the opening with the
deposited metal films, and removing the second metallic film
10 on the stopper for chemical mechanical planarization using a
chemical mechanical planarization solution.